

AMENDMENTS TO SPECIFICATION

Please amend the paragraph starting at page 20, line 28 and continuing to page 21, line 24, as follows:

FIG. 7A and Fig 7B are perspective views of an alternate embodiment showing semiconductor chips or dies 20 with micro-pins 22 assembled vertically adjacent to each other on a substrate 90. The semiconductor dies, each with micro-pins on one of its sides, may be attached to a substrate vertically adjacent to each other as shown in FIG. 7A. This embodiment is useful when it is desired to achieve a high packing density or to provide a highly compact system, by assembling chips adjacent to each other rather, than on top of each other. Assembling chips adjacent to each other is especially attractive when the chips have differing dimensions. In contrast to attaching a die so that it is flat on the substrate, vertical attachment of semiconductor dies using micro-pins as described by this embodiment also assists in reducing thermo-mechanical stresses arising as a result of difference in the Coefficient of Thermal Expansion (CTE) that typically exists between a semiconductor die and a non-semiconductor substrate such as an FR-4 board or a high density substrate. This is because the distance from die neutral point (DNP) on the substrate is significantly reduced in vertical assembly, as opposed to that in horizontal assembly. Vertically assembled chips as shown in FIG. 7A may be firmly supported by specially designed mechanical clamps or fixtures 92 as shown in FIG. 7B.

Please amend the paragraph at page 24, lines 1 - 11 as follows:

FIG. 11A and FIG. 11B illustrate an alternate embodiment showing vertical or horizontal attachment of devices, such as a Group III-V (compound semiconductor, such as GaAs, InP) device or other device 124, on a silicon chip or die 140. The die 140 has micro-pins 142, while the device 124 has micro-pins ~~144~~, 144, which are received in micro-cups 148. This embodiment is useful when it is necessary to build heterogeneous system. The device 124 is attached at a point in the fabrication process later than that at which micro-pins ~~143~~ 144 are formed.